

Plant communities of the Great Gobi B Strictly Protected Area, Mongolia

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Abstract

This paper presents the first syntaxonomical overview of plant communities of the Great Gobi B Strictly Protected Area. Within Mongolia this region represents the south-westernmost protected area and preserves several species listed in the IUCN Red List. Therefore the region is of high importance to the country and moreover for the whole Central Asian eco-zone. Knowledge of the main habitat types is a precondition for nature conservation. Based on 211 vegetation samples collected during the summer of 2003 we derived 16 vegetation units. There are two mountainous communities; eight zonal semi-desert units, and the extra-zonal vegetation is assigned to six communities. The described vegetation units are compared with available descriptions from other Gobi regions.

Key words: conservation, Dzungaria, Gobi, habitat, Mongolia, phytosociology, plant communities

Introduction

The Great Gobi Strictly Protected Area is located in the south-western part of Mongolia (see Figure 1). It covers some 44,000 km² and hence represents one of the largest protected areas worldwide. With respect to size, it ranks 33 within the 26,000 protected areas in the world listed by the IUCN in 2005 (<http://glcf.umiacs.umd.edu/data/wdpa>). It is divided into two regions; the larger one represents much of the Mongolian Trans-Altay Gobi, the smaller one represents large parts of the Mongolian Dzungarian Gobi. The latter region is mainly covered by semi-desert vegetation, yet several oases as well as high mountain desert-steppes are also found there. The main focus of this reserve is the conservation of equids (*Equus ferus przewalskii*, *E. hemionus hemionus*; Kaczensky et al., submitted), although several other endangered species occur as well. The region's flora is reasonably well known (Jäger et al., 1985; Gubanov, 1996; Grubov, 2000, 2001), but knowledge on the vegetation of the Gobi is only available on a rough nation-wide scale (Yunatov, 1954; Hilbig, 1990; Lavrenko & Karamysheva, 1993; Gunin & Vostokova, 1995; Hilbig, 1995, 2000). Attaining detailed knowledge on the vegetation, therefore, represents the first step towards creating a comprehensive ecological protection framework for the reserve (von Wehrden,

2005; von Wehrden & Wesche, 2006). Vegetation samples also serve as useful ground-truth data for satellite-based vegetation mapping (von Wehrden and Wesche, 2007). The results presented here are part of a larger survey, which covers all protected areas in the whole southern Mongolian Gobi.

Working area

Climate. The Great Gobi B Strictly Protected Area (henceforth abbreviated as "SPA") is part of the Mongolian Dzungarian Gobi. This eco-region extends westwards well into China and Kazakhstan. It is the only region in southern Mongolia that is not screened by high mountain ranges against rainfalls originating westwards over the Mediterranean, the Black Sea and the Caspian Sea. Therefore, both the flora and vegetation of the Dzungarian Gobi show certain linkages to the Aralo-Caspian region (Meusel et al., 1965). There are presently no climate stations situated in the working area, but an extrapolation model (Hijmans et al., 2005) indicates a mean annual rainfall of below 100 mm/yr for most sites; however the highest peaks in the south (2850 metres asl.) may gain as much as 180 mm/yr in an average year. Winter temperatures are low, ranging between -20°C and -30°C. In contrast, the summers are hot, with a maximum average July temperature of around 28°C. Due to the influence of western disturbances in winter; snowfall seems to